

### ***Remarks***

Upon entry of this Amendment, claims 1, 3, 5, 14, 15 and 23 will be pending. Claims 2, 4, 6-13 and 19-22 have been canceled without prejudice or disclaimer. Claims 1 and 23 have been amended to more clearly define the claimed subject matter. Support for the amendments can be found throughout the specification as filed. Applicants assert that no new matter has been added by way of these amendments.

Applicants would like to thank the Examiner for the teleconference with Applicants' representative Robert W. Esmond on March 28, 2007, and March 29, 2007, regarding amendments to the claims. Applicants would also like to thank the Examiner for initialing references AS22 through AR23 found in the October 6, 2005 filing of form PTO/SB/08B.

### ***Drawing Objection***

The drawings are objected to because Figure 2B, filed on December 22, 2006, is too dark and the figure is not legible. Applicants would like to respectfully point out that the problem seems to be on the PTO end. Applicants reviewed the December 22, 2006 filing and a clearly legible Figure 2B was submitted. In order to expedite prosecution of the present invention, however, Applicants resubmit by way of this Amendment, replacement drawing sheets 1-10. As the Examiner's objection is now obviated, Applicants respectfully request that the objection be withdrawn.

### ***Sequence Rules Compliance***

The Examiner has objected to the December 22, 2006, sequence filing because it did not include the statement alluding to the identical nature of the paper copy and computer readable copy of the sequence listing and also that no new matter has been

included. The Examiner has also objected to the sequence listing filed on December 22, 2006, in that the Scientific and Technical Information Center (STIC) objected to the term "Artificial" in SEQ ID NOS: 5-8, stating that the correct terminology is "Artificial Sequence." The STIC also asked Applicants to make sure that the "n" at position 2422 of SEQ ID NO: 3 is explained within fields <220> to <223> of SEQ ID NO: 3.

Accompanied with this Amendment, is a corrected paper copy of the sequence and a corrected computer copy of the sequence, wherein SEQ ID NOS: 5-8 now contain the term "Artificial Sequence" at field <213> of each sequence. Also submitted with this Amendment, is a statement attesting to the identical nature of the paper and computer copies of the sequences and also attesting that no new matter has been added. Finally, Applicants have determined that a suitable explanation of "n" at position 2422 of SEQ ID NO: 3 is provided within fields <220> to <223> of SEQ ID NO: 3. As the Examiner's and STIC's objections are now obviated, Applicants respectfully request that the objections be withdrawn.

***Claim Rejections – 35 U.S.C. § 112, second paragraph***

Claims 1, 3-6, 14, 15 and 23 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states that Claim 1 is indefinite because of the use of the phrase "nucleotide sequence corresponding to." The Examiner suggests that this can be overcome by amending the claim to "nucleotide sequence set forth at." Further, the Examiner states that claim 1 is indefinite because it is not clear how the polynucleotide binds afadin or actinin. The Examiner suggests that this can be overcome if the claim is amended to read "wherein

the polynucleotide encodes a polypeptide which binds afadin and/or actinin." The Examiner also rejects claim 6 because it is broader than the base claim and claims 3-5, 14, 15 and 23 for depending on an indefinite base claim.

With this Amendment, claims 4 and 6 have been canceled and claims 1 and 23 have been amended to further clarify the invention. Applicants have amended claim 1 in accordance with the Examiner's suggestion. Claims 3, 5, 14, 15 and 23 depend from amended claim 1.

Applicants submit that amended claim 1 and claims dependent thereon comply with 35 U.S.C. § 112, second paragraph and, therefore, respectfully request that the Examiner withdraw this rejection.

***Claim Rejections – 35 U.S.C. § 112, first paragraph***

***Written Description***

Claim 6 is rejected under 35 U.S.C. § 112, first paragraph as allegedly failing to comply with the written description requirement. The Examiner states that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention.

Claims 1, 3-6, 15 and 23 are rejected under 35 U.S.C. § 112, first paragraph as allegedly failing to comply with the written description requirement. The Examiner states that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention. The Examiner alleges that in claim 1 the phrases, "position 80 to 1924 in SEQ ID NO: 1," and "at least 95% homology," are not

supported by the specification. The Examiner also rejects claim 23 for not having support in the specification for the term "transformed."

With this Amendment, claims 4 and 6 have been canceled and claims 1 and 23 have been amended to further clarify the invention. Furthermore, Applicants traverse the lack of support alleged in claim 1.

Applicants have amended claim 23 by deleting the term "transformed" and replacing it with the term "retaining." The term "retaining," as it is used in claim 23, finds support in the specification as originally filed on page 24, line 31.

Applicants submit that the objected to phrases in claim 1 is supported by the specification. The phrase, "position 80 to 1924 in SEQ ID NO: 1" is supported by the specification as originally filed within the sequence listing at SEQ ID NO: 1. SEQ ID NO: 1 is considered part of the specification as filed and position 80 to 1924 is part of SEQ ID NO: 1. Note the methionine at position 1 of the amino acid sequence of SEQ ID NO: 2 is coded for by nucleotides 80-82 of SEQ ID NO: 1. In addition, the last C-terminal proline at position 615 of SEQ ID NO: 2 is coded for by nucleotides 1922-1924 of SEQ ID NO: 1. Thus, there is clear support in the specification for a nucleotide molecule consisting of the nucleotide sequence of SEQ ID NO: 1 set forth at positions 80 to 1924.

Applicants submit that amended claim 1 and claims dependent thereon comply with 35 U.S.C. § 112, first paragraph and, therefore, respectfully request that the Examiner withdraw this rejection.

Claim 6 is further rejected as allegedly containing subject matter that was not described in the specification. Specifically, the Examiner alleges that there is no support for the "host cell transformed with the polynucleotide of claim 1."

With this Amendment claim 6 has been canceled and therefore, respectfully request that the Examiner withdraw this rejection.

***Enablement***

Claims 1, 3-6, 15 and 23 are rejected under 35 U.S.C. § 112, first paragraph, because the specification allegedly does not provide enablement for the claimed variants. The Examiner states that the specification, while being enabling for an isolated polynucleotide encoding a polypeptide which binds afadin,  $\alpha$ -actinin-1 or  $\alpha$ -actinin-2, a vector comprising the polynucleotide and host cell comprising said vector, and using said host cell to produce the claimed polynucleotide; does not reasonably provide enablement for *other polynucleotides*.

With this Amendment, claims 4 and 6 are cancelled and claims 1 and 23 have been amended to further clarify the invention.

Claim 1 has been amended to recite "(a) a polynucleotide encoding a protein *consisting of* the amino acid sequence of SEQ ID NO: 2; and (b) a polynucleotide *consisting of* the nucleotide sequence set forth at position 80 to 1924 in SEQ ID NO: 1." Applicants believe that this places claim 1 and the claims dependent thereon in condition for allowance.

Applicants submit that amended claim 1 and claims dependent thereon comply with 35 U.S.C. § 112, first paragraph and, therefore, respectfully request that the Examiner withdraw this rejection.

Claims 1, 3-6 and 15-18 are rejected under 35 U.S.C. § 112, first paragraph, because the specification allegedly does not provide enablement for other

polynucleotides. The Examiner states that the specification, while being enabling for an isolated polynucleotide encoding a polypeptide which binds afadin,  $\alpha$ -actinin-1 or  $\alpha$ -actinin-2, a vector comprising the polynucleotide and host cell comprising said vector, and using said host cell to produce the claimed polynucleotide; does not reasonably provide enablement for *other polynucleotides*.

With this Amendment, claim 1 has been amended as indicated above and claims 4, 6 and 16-18 have been canceled. Applicants submit that amended claim 1 and claims dependent thereon comply with 35 U.S.C. § 112, first paragraph and, therefore, respectfully request that the Examiner withdraw this rejection.

***Claim Rejections – 35 U.S.C. § 102***

Claims 1, 3, 4, 6 and 15-18 are rejected under 35 U.S.C § 102(b), as being allegedly anticipated by The RIKEN Genome Exploration Research Group Phase II Team and the FANTOM Consortium. The Examiner states that the reference discloses a polynucleotide which has 99.4% query match and 99.9% identity to the polynucleotide of SEQ ID NO: 1. The Examiner also states that a vector comprising said polynucleotide and cell comprising said vector are disclosed.

Claims 1, 3, 4, 6 and 15-18 are rejected under 35 U.S.C § 102(b), as being allegedly anticipated by Carninci *et al.* The Examiner states that the reference discloses a polynucleotide which has 99.4% query match and 99.9% identity to the polynucleotide of SEQ ID NO: 1. The Examiner also states that a vector comprising said polynucleotide and cell comprising said vector are disclosed.

Claims 1, 3, 4, 6 and 14-18 are rejected under 35 U.S.C § 102(a), as being allegedly anticipated by Mammalian Gene Collection Program Team. The Examiner

states that the reference discloses a polynucleotide which has a 99.9% query match and a 99.9% identity to the polynucleotide of SEQ ID NO: 1. The Examiner also states that a vector comprising said polynucleotide and cell comprising said vector are disclosed.

With this Amendment, claims 4, 6 and 16-18 are canceled and claim 1 has been amended to further clarify the invention.

Amended claim 1 recites "(a) a polynucleotide encoding a protein *consisting of* the amino acid sequence of SEQ ID NO: 2; and (b) a polynucleotide *consisting of* the nucleotide sequence set forth at position 80 to 1924 in SEQ ID NO: 1."

The references cited above disclose genome sequences which have 99.4% to 99.9% identity to the polynucleotide of SEQ ID NO: 1, however, these references do not disclose the specific nucleotide sequence in the corresponding genome sequences (i.e. position 80 to 1924 in SEQ ID NO: 1), nor do they disclose the specific amino acid sequence recited in SEQ ID NO: 2. Therefore, the cited references do not disclose each and every element recited in claim 1 of the present invention.

Furthermore, the effective filing date of the present application is September 27, 2002. This is supported by the certified English translation of foreign priority document Japan 2002-284263, filed on December 22, 2006. The publication date of the Mammalian Gene Collection Program Team (PNAS, Vol. 99, pages 16899-16903, December 24, 2002) is December 24, 2002. Therefore, Applicants submit that it is improper to reject claims as anticipated under § 102(a) by the Mammalian Gene Collection Program Team publication.

Based on the foregoing, Applicants respectfully request that the Examiner reconsider and withdraw the rejections under 35 U.S.C. § 102.

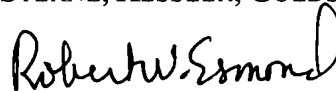
***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Robert W. Esmond  
Attorney for Applicants  
Registration No. 32,893

Date: August 20, 2007  
1100 New York Avenue, N.W.  
Washington, D.C. 20005-3934  
(202) 371-2600

710769\_3.doc